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SOME ASPECTS OF EVOLUTION¹

By Professor RICHARD GOLDSCHMIDT

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IN his much-discussed presidential address at the 1914 meeting of the British Association, the great skeptic William Bateson finished with the following sentence: "Somewhat reluctantly and rather from a sense of duty I have devoted most of this address to the evolutionary aspects of genetic research. We can not keep these things out of our heads, as sometimes we wish we could. The outcome, as you will have seen, is negative, destroying much that till lately passed for gospel." This negative standpoint was certainly justified to a certain extent by the results of early Mendelian work, which led more in the direction of evolutionary skepticism than optimism. Almost twenty years have passed since, which have witnessed an unbelievable increase in the knowledge of genetical facts. And whereas, as Bateson says, we can not keep these things, namely, the evolutionary

aspect of genetics, out of our heads, geneticists from time to time like to leave their bottles, breeding cages and seed pans and to review the advances of experimental work in regard to their bearing on problems of evolution. I must confess to have been repeatedly guilty myself of this sin during the past 15 years, with the result that the curve of my deliberations was oscillating between skepticism and optimism and still is doing so. Let me not be misunderstood: not skepticism in regard to evolution, which I regard as a historic fact, as all biologists do; but skepticism and optimism regarding the insight into the means of evolution on the basis of genetic facts.

You all know that the majority of the geneticists are to-day rather optimistic. Genetic experimentation certainly has shown that the sudden changes of the hereditary units, the genes, called mutations occur with sufficient frequency to furnish material for selection; it has shown that in plants at least considerable changes, amounting to the formation of

¹ Paper read at a general meeting of the American Association for the Advancement of Science, in Chicago, June, 1933.

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